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UNILEVER PATENT GROUP  
800 SYLVAN AVENUE  
AG West S. Wing  
ENGLEWOOD CLIFFS, NJ 07632-3100

EXAMINER
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ARNOLD, ERNST V

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RITU VERMA and YONGHUI YUAN

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Appeal 2009-008531  
Application 10/645,576  
Technology Center 1600

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Decided: January 12, 2010

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Before DONALD E. ADAMS, ERIC GRIMES, and STEPHEN WALSH,  
*Administrative Patent Judges.*

WALSH, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims to a process for incorporating zinc oxide (ZnO) in a cosmetic composition. The Patent Examiner rejected the claims on grounds of indefiniteness and obviousness. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

## STATEMENT OF THE CASE

The invention relates to making a cosmetic by incorporating ZnO particles in melted fatty acid. According to the Specification, the invention “is based on the discovery that a reaction of ZnO in a fatty acid environment of a vanishing cream, controlled at less than 80°C . . . leads to the formation of a zinc stearate shell on ZnO nano-particles.” (Spec. 4:7-10.)

Claims 1, 4-9 and 21-23, which are all the pending claims, are on appeal. Claim 1 is representative and reads as follows:

1. A process for incorporating ZnO particles in a cosmetic composition comprised of solid asymmetric particles, comprising:

Melting said solid asymmetric particles to form melted fatty acid;

Adding un-coated ZnO particles to said melted fatty acid to form a mixture of ZnO and fatty acid;

Heating said mixture to a temperature of less than about 80°C for about 5 to about 10 minutes;

Cooling said mixture to a temperature of about 50°C, thereby quenching any reaction between said ZnO and said fatty acid.

The Examiner rejected the claims as follows:

- claims 1, 4-9 and 21-23 under 35 U.S.C. § 112, second paragraph as indefinite;
- claims 1, 4-9 and 21-23 under 35 U.S.C. § 103(a) as unpatentable over Mitchnick,<sup>1</sup> Galley,<sup>2</sup> and Halls;<sup>3</sup> and

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<sup>1</sup> US 5,441,726, issued to Mark Mitchnick et al., Aug. 15, 1995.

<sup>2</sup> US 5,609,852, issued to Edward Galley et al., Mar. 11, 1997.

<sup>3</sup> US 6,267,949 B1, issued to Neil Graham Halls, Jul. 31, 2001.

- claims 1, 6, 8, and 21-23 under 35 U.S.C. § 103(a) as unpatentable over Nishihama.<sup>4</sup>

The dependent claims have not been argued separately and therefore stand or fall with claim 1, as grouped in the rejections. 37 C.F.R. § 41.37(c)(1)(vii).

## DISTINCT CLAIMING

### *The Issue*

The Examiner's position is that the metes and bounds of "solid asymmetric particles" recited in claim 1 is "unclear to the Examiner." (Fin. Rej. 3.)

Appellants contend that the term is clear and not indefinite, and that the Specification discloses that "the solid asymmetric particles may be particles of a fatty acid containing from 12 to 22 carbon atoms, and they may optionally be crystalline." (App. Br. 7.)

The issue with respect to this rejection is whether Appellants established that the Examiner did not present a prima facie case of indefiniteness.

### *Findings of Fact*

1. The preamble of claim 1 recites a "cosmetic composition comprised of solid asymmetric particles."

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<sup>4</sup> WO 02/24153, by Shuji Nishihama, published Mar. 28, 2002. For the translation, the Examiner and Appellants cite to Nishihama's US Patent 6,949,248 B2, which issued from the WO Application.

2. The first step in claim 1 recites “melting” the “solid asymmetric particles” of the preamble “to form melted fatty acid.”
3. The Specification discloses: “[t]he solid asymmetric particles may be particles of a fatty acid containing from 12 to 22 carbon atoms and/or may optionally be crystalline.” (Spec. 5:10-11.)

### *Principles of Law*

“A claim is indefinite if its legal scope is not clear enough that a person of ordinary skill in the art could determine whether a particular composition infringes or not.” *Geneva Pharms., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003). During prosecution “if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite.” *Ex Parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008).

### *Analysis*

Appellants argue that the Specification provided sufficient identification of the particles, which “may be particles of a fatty acid.” (FF3.) The Examiner was unpersuaded by this argument, maintaining the view that “[m]ay” is permissive language and not definite.” (Fin. Rej. 3.) The Examiner also raised the concern that if the preamble’s “solid asymmetric particles” were quartz, they would not form melted fatty acid in the first step of the process. (Ans. 12.)

We interpret the claim, read as a whole, to mean that the preamble's solid asymmetric particles are a material that would form fatty acid when melted. Particles that do not form melted fatty acid when melted are not included. We conclude that the Examiner's quartz-inclusive interpretation is not plausible. The rejection does not explain how the claim is "amenable to two or more plausible claim constructions," and it therefore does not meet the *Miyazaki* standard for rejection. *See* 89 USPQ2d at 1211.

The standard for definiteness is whether "a person of ordinary skill in the art" could determine the metes and bounds of the claim, not whether the claim is "unclear to the Examiner." Compare *Geneva*, 349 F.3d at 1384, with Ans. at 3. Because the rejection did not show indefiniteness under the correct legal standard, we conclude that it did not state a prima facie case of indefiniteness.

## OBVIOUSNESS

### *Principles of Law*

A rejection for obviousness must include "articulated reasoning with some rational underpinning to support the legal conclusion." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007), quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). The proper question to ask is whether a person of ordinary skill in the art would have seen a benefit to combining the prior art teachings. *KSR*, 550 U.S. at 424; *see also In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) (the desirability of the combination may arise from nature of the problem, teachings of references, or the ordinary knowledge of those skilled in the art). "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield

predictable results.” *KSR*, 550 U.S. at 416. “[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *KSR*, 550 U.S. at 417.

“The transition ‘comprising’ in a method claim indicates that the claim is open-ended and allows for additional steps.” *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368 (Fed. Cir. 2003). “[W]hile it is true that claims are to be interpreted *in light of* the specification . . . , it does not follow that limitations from the specification may be read into the claims. . . . It is the *claims* that measure the invention.” *Sjolund v. Musland*, 847 F.2d 1573, 1581-82 (Fed. Cir. 1988) (emphasis in original, citation omitted).

#### *Further Findings of Fact*

4. The Specification states: “The present invention is based on the discovery that a reaction of ZnO in a fatty acid environment of a vanishing cream, controlled at less than 80°C, preferably about 60°C to about 70°C, leads to the formation of a zinc stearate shell on ZnO nano-particles.” (Spec. 4:7-10.)
5. The Specification states: “Applicants have discovered that the undesirable reaction can be controlled and, in fact, used to advantage, if the reaction time and temperature during the mixing of untreated zinc oxide nano-particles with stearic acid during the production of the composition are carefully controlled.” (*Id.* at 6:12-15.)

6. Mitchnick described a process for making a cosmetic composition in which “zinc oxide rods are combined with a cosmetic carrier.”  
(Mitchnick, col. 12, ll. 62-63.)
7. An example Mitchnick composition included 5 wt.% stearic acid and 8 wt.% zinc oxide rods. (*Id.*, col. 13, ll. 4-21.)
8. Mitchnick’s example process included:
  - (1) mixing solids including zinc oxide rods and pulverizing them to make a pigment mixture,
  - (2) mixing aqueous components together to make a solution,
  - (3) dispersing the pigment mixture in the aqueous solution and heating to 75° C,
  - (4) forming a solution of oily components including the stearic acid and heating it to 80° C,
  - (5) adding the oily solution to the aqueous dispersion with stirring to form an emulsion,
  - (6) cooling with stirring to 50° C, and
  - (7) adding perfume and cooling with stirring.(*Id.*, col. 13, ll. 23-36.)
9. Galley described zinc oxide particles for use in cosmetic formulations.  
(Galley, col. 2, ll. 22-31.)
10. Galley taught using fatty acid soaps such as potassium stearate as emulsifiers for oil-in-water sunscreen compositions. (*Id.*, col. 4, ll. 48-53.)
11. Galley taught forming metal oxide and stearate containing sunscreen emulsions by heating at 70-75° C, with cooling after 5-10 minutes.  
(*Id.*, Examples 18-20, cols. 9-10.)



12. Nishihama taught a zinc oxide containing cosmetic composition.  
(Nishihama, Abstract.)
13. Nishihama described the preparation of an emulsified sunscreen that contained zinc white and stearic acid. (*Id.*, col. 8, Table 4.)
14. In Nishihama's sunscreen preparation process, (i) a water phase was formed and maintained at 70° C, (ii) an oil phase including stearic acid was heated for dissolution and maintained at 70° C, (iii) zinc white was dispersed in the water phase, (iv) the oil and water phases were emulsified, and (v) the emulsion was cooled to 35° C. (*Id.*, col. 8, l. 37 – col. 9, l. 3.)

### *The Issues*

#### A. Obviousness Rejection over Mitchnick, Galley and Hall

The Examiner found that Mitchnick described making a cosmetic composition by dispersing uncoated ZnO rods in a solution, heating the solution to 75°C, adding that heated solution to an 80°C mixture comprising melted stearic acid (a fatty acid) to produce an emulsion, and cooling the emulsion under stirring to 50°C. (Ans. 5.) The Examiner found that Mitchnick did not teach “heating said mixture [of ZnO particles and melted fatty acid] to a temperature of less than about 80°C for about 5 to about 10 minutes.” (*Id.* at 7.)

The Examiner found that Galley provided a “general teaching for the preparation of sunscreen compositions comprised of metal oxides such as zinc oxide.” (*Id.* at 6.) According to the Examiner, Galley's process included heating oil phase components to 70-75°C, mixing them with an

aqueous phase containing the metal oxide for 5-10 minutes, and cooling the emulsion. (*Id.*) Galley disclosed that fatty acid soaps such as potassium stearate were effective emulsifying agents. (*Id.*) The Examiner concluded it would have been obvious to use Galley's 5-10 minute 70-75°C heating phase when producing Mitchnick's emulsion "because once the emulsion is formed one of ordinary skill in the art would end the reaction." (*Id.* at 7.)

Appellants contend that in the present invention, "zinc oxide is added to melted fatty acid leading to the formation of a zinc stearate shell on a zinc oxide nano-particle." (App. Br. 10.) According to Appellants, Mitchnick's zinc oxide rods are pulverized, but "zinc oxide is not added to a fatty acid comprising component first but to aqueous components." (*Id.* at 10-11.)

Appellants further argue that Mitchnick's composition "is a creamy foundation, and such a composition would not be formed with the solid asymmetric particles defined according to the present invention." (*Id.* at 11.) Appellants argue that "[t]here is no teaching whatsoever in the [Galley] reference that even remotely suggests that solid asymmetric particles may be melted and combined with zinc oxide to thereby produce a mixture of zinc oxide and fatty acid," and reiterate that "zinc oxide is not added to melted fatty acid in the primary reference of record." (*Id.* at 12.)

The issue with respect to this rejection is whether Mitchnick disclosed a process comprising addition of zinc oxide to melted fatty acid.

#### B. Obviousness Rejection over Nishihama

The Examiner found that Nishihama's process of making a sunscreen involved mixing a stearic acid containing oil phase with a zinc oxide containing water phase, with both phases at 70°C. (Ans. 10.) "[A]fter

emulsification, the emulsion was cooled to 35°C with stirring.” (*Id.*) Nishihama did “not expressly teach heating the mixture for about 5 to about 10 minutes.” (*Id.*) However, the Examiner found that “one of ordinary skill in the art can determine when the emulsification process is finished and such a time would fall in the range of about 5 to about 10 minutes.” (*Id.* at 11.) Accordingly, the Examiner concluded that Appellants’ process would have been obvious. (*Id.*)

Appellants contend that there is no teaching in “that even remotely suggest[s] the addition of zinc oxide particles to melted fatty acid to form a mixture of zinc oxide and fatty acid. In fact, it is unclear . . . what, if any, zinc white and stearic acid contact there will be.” (App. Br. 14.) “In view of this, it is clear that a *prima facie* case of obviousness has not been established . . . .” (*Id.*)

The issue with respect to this rejection is whether Nishihama disclosed a process comprising addition of zinc oxide to melted fatty acid.

### *Analysis*

#### Claim Interpretation

We do not agree with Appellants’ argument that “zinc oxide is not added to melted fatty acid in [Mitchnick].” (App. Br. 12.) Appellants’ argument is really that Mitchnick did not describe adding zinc oxide alone to melted fatty acid alone. (*Id.* at 11.) The problem with this argument is that claim 1 uses the transition “comprising,” which means that the claim allows for additional steps. *See, e.g., Invitrogen*, 327 F.3d at 1368. Thus, claim 1 does not exclude a step of adding zinc oxide to aqueous components before adding it along with the other aqueous components to a melted fatty acid,

which itself could have been previously added to other oily phase components. Although the Specification describes using ZnO particles in “the stearic acid phase” (*e.g.*, Spec. at 17:12-13), claim 1 does not require either a pure zinc oxide phase or a pure stearic acid phase. Preferred limitations are not read into the claims. *See Sjolund*, 847 F.2d at 1581-82.

Appellants’ arguments regarding Nishihama are similarly based on a claim interpretation that requires mixing only zinc oxide and melted fatty acid together. The claim is not that narrow.

Appellants’ arguments do not establish Examiner error

Appellants’ argument about formation of a zinc stearate shell on a zinc oxide nano-particle (App. Br. 10), is also unpersuasive. Claim 1 does not mention shell formation, and the Specification attributes shell formation to time and temperature control in an undefined “fatty acid environment.” (FF 1, 2.) Mitchnick described zinc oxide in a fatty acid “environment” when the aqueous mixture comprising zinc oxide was mixed with melted fatty acid to form an emulsion. Further, Appellants do not argue that shell formation would not occur in Mitchnick’s process, with or without the known time and temperature controls taught by Galley. Finally, the Specification’s discussion of shell formation may relate to a “stearic acid phase” containing only ZnO and melted stearic acid (Spec. at 17), but because claim 1 is open to additional steps, claim 1 is not limited to an addition step in which a stearic acid phase containing only ZnO and melted stearic acid necessarily forms.

Appellants argue that a creamy composition such as Mitchnick described “would not be formed with the solid asymmetric particles defined

according to the present invention.” (App. Br. 11.) We find this argument unpersuasive because (1) we disagree that solid asymmetric particles are defined by the present invention, and (2) the claimed process does not exclude the formation of a creamy composition. When the preamble’s solid asymmetric particles are melted in the claimed process, they are no longer solid asymmetric particles, and solid asymmetric particles are not defined by the claimed process as a whole. Claim 1’s process does not exclude the formation of a creamy composition, and rather than distinguishing creamy compositions like Mitchnick’s, Appellants’ “invention relates to cosmetic skin creams.” (Spec. 1:6.)

Appellants argue that Galley does not suggest “that solid asymmetric particles may be melted and combined with zinc oxide to thereby produce a mixture of zinc oxide and fatty acid.” (App. Br. 12.) We agree with the Examiner’s findings concerning Galley’s disclosure, and find that Appellants’ argument does not address the Examiner’s reason for combining the Mitchnick and Galley teachings. Galley taught a process for preparing sunscreen compositions, and the process included mixing a metal oxide such as zinc oxide and fatty acid, specifically, a fatty acid soap such as potassium stearate as an emulsifier. Appellants’ focus on Galley’s failure to mention melting asymmetric particles does not persuade us of error.

In the Examiner’s obviousness analysis of Nishihama’s disclosure, the Examiner found the only difference between the claimed process and Nishihama’s process was that Nishihama did not recite “heating said mixture to a temperature of less than about 80° C for about 5 to about 10 minutes.” Appellants do not dispute the Examiner’s finding that determining when the emulsification process was finished was within the level of ordinary skill

and that a 5 to 10 minute period would have been obvious. Instead, Appellants' only argument is that Nishihama did not disclose adding only zinc oxide and melted fatty acid to each other. For the reasons explained above, we do not agree with Appellants that the claim is properly interpreted as limited to the addition of pure zinc oxide to pure melted fatty acid.

### CONCLUSIONS OF LAW

The Examiner did not present a prima facie case of indefiniteness.

We interpret the "comprising" term in claim 1 to mean the claim is open to additional, unrecited, steps.

Appellants have not established error in the Examiner's fact finding.

Appellants have not established that the Examiner erred in concluding that on this record, there were two prima facie cases of obviousness.

### SUMMARY

We reverse the rejection of claims 1, 4-9 and 21-23 under 35 U.S.C. § 112, second paragraph as indefinite;

we affirm the rejection of claims 1, 4-9 and 21-23 under 35 U.S.C. § 103(a) as unpatentable over Mitchnick, Galley, and Halls; and

we affirm the rejection of claims 1, 6, 8, and 21-23 under 35 U.S.C. § 103(a) as unpatentable over Nishihama.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

**AFFIRMED**

Appeal 2009-008531  
Application 10/645,576

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UNILEVER PATENT GROUP  
800 SYLVAN AVENUE  
AG West S. Wing  
ENGLEWOOD CLIFFS NJ 07632-3100